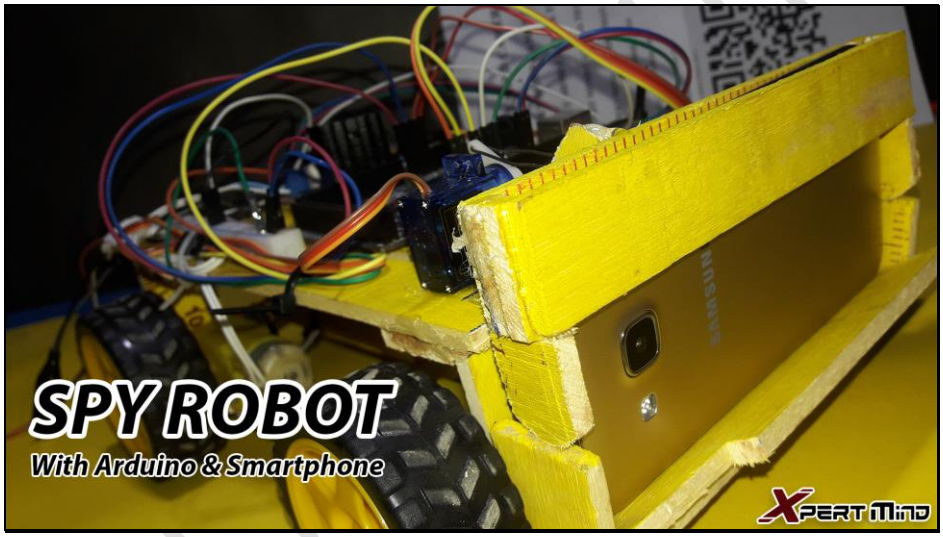
Spy Robot Using Arduino & Smartphone



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Abstract

In this project I am have designed a robot on which I have mounted a camera to make him a spy robot. I took this idea from NASA Mars robot which they had left there, as well as from “Wall E” an Hollywood movie. I want to make it with arduino but as we know arduino cant process such a big data due to its very small ram. So I thought of combining two concepts, One Smartphone controlling rc car and other is ip camera which capture camera on real time basis and send it through a specific ip address. In this way it works it not totally based on arduino nor on ip camera but combination of both.

The main problem due to which I suffered a lot was where to mount the camera to get maximum advantage from it. Then I just put it in front. So it will be able to show us what is in the front as well as by change servo angle it can also show us what is lying below.

Required Stuff

Material Name	Quantity
Wooden Ruler	10
Zipper	20
Screws	8
Glue Gun	---
Solution	2
Arduino	1
Jumper Wires	M-M 15 M-F 3
Servo Motor	1
Bluetooth Module	1
L298N Module	1
Batteries	2
Dc Motors	2
Wheels & Holders	4
Smartphones	2
Laptop	1

Procedure

In order to understand it easily, I divided my model into three parts.

Part 1 Base Of Car

Part 2 Rc Car Circuit

Part 3 Camera Installation

Part 1

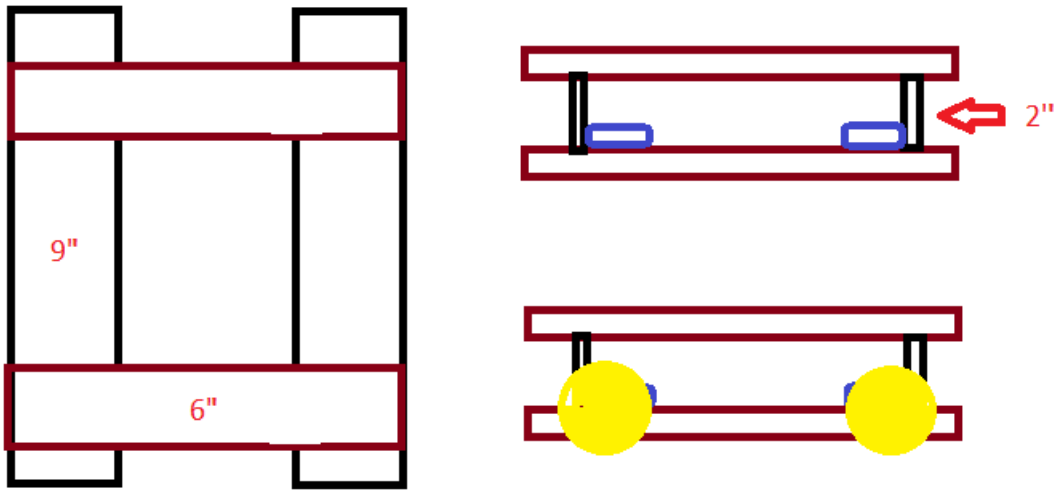
Step First

First cut ruler according to given lengths:

Length	Quantity
9 Inches	2
8 Inches	2
2 Inches	4
6 Inches	12
1 Inches	2

Step Second

After cutting try to make the base according to below figures:



Step 3rd

Having designed base, install wheel holder near the 2 Inches plank on the 9 inches plank.

Tie the zipper. Put the wheels on holders.

That Was All For Part 1…

Part 2

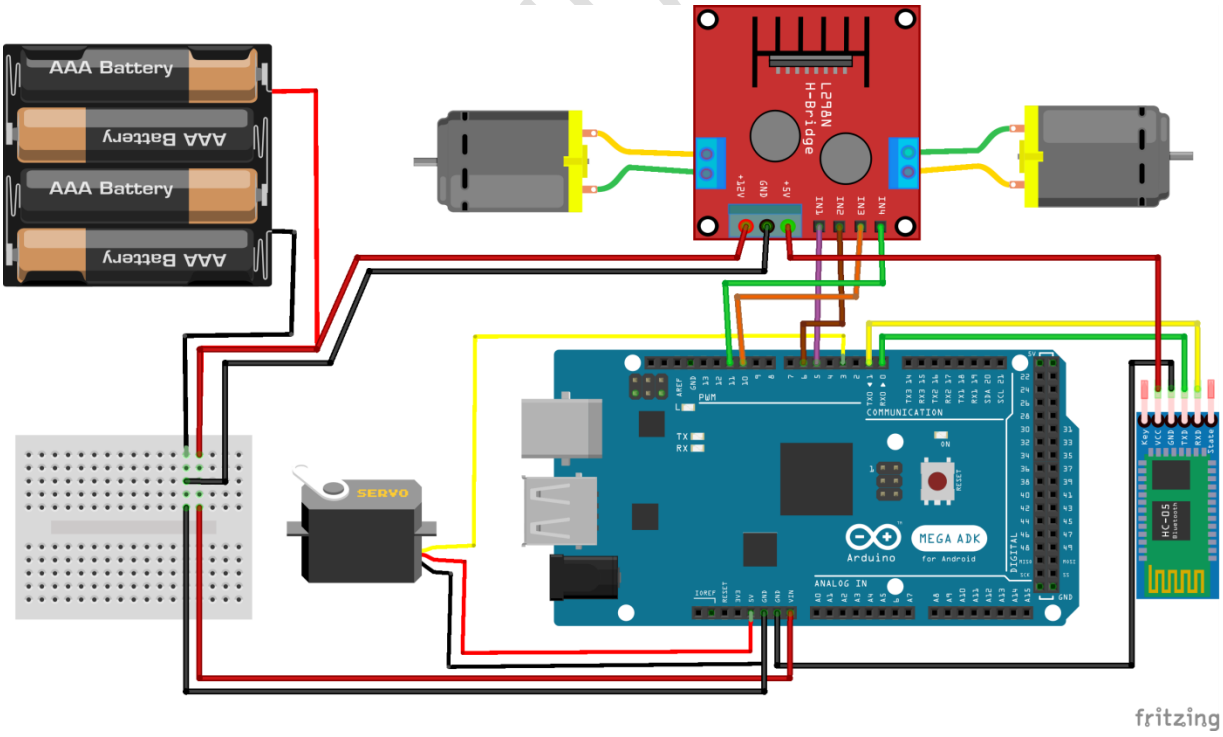
Step First

First upload the code from laptop to arduino board. It will easy if you do it now, then connecting every module and uploading code later.

Mount the board on Rc Base with help of double tape so it would be easy to remove if its needed later.

Step Second

Then design the circuit of Rc car according to diagram shown below:



Note: Don't forget to remove "tx" and "rx" pins if you are uploading code later.

Step Third

Install Rc Car controlling app on second phone .Try to check Rc car circuit connect it by Bluetooth and test it…

That Was All For Part 2…

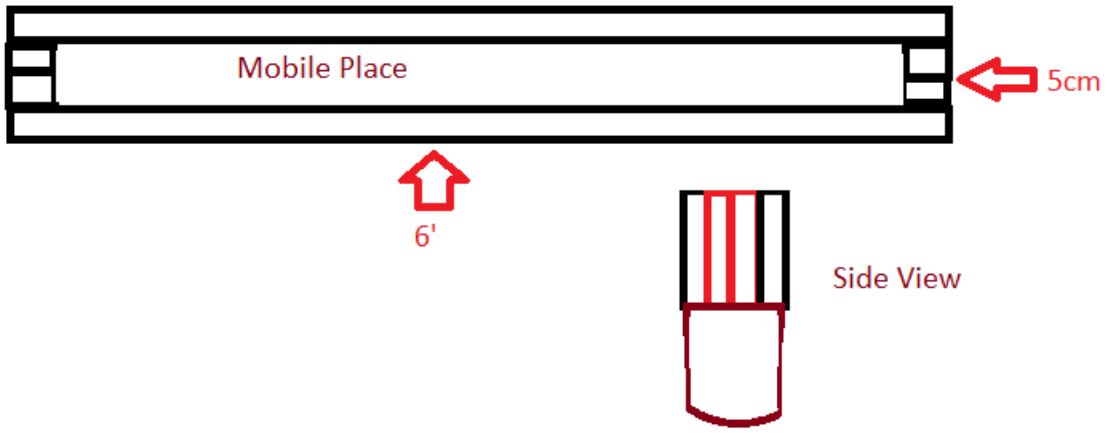
Part 3

Step First

First install the “Ip Camera” app on one of the smartphone you want to use as you spy camera on Rc car.

Step Second

Having installed ip camera on phone, place your phone on a wooden ruler and mark its boundary, Try to cut 1 cm extra while cutting that ruler.



Then try to make a rectangle in which you can easily pass your phone. Attach a circular hook on long side of rectangle to attach it with servo motor. Like the figure below:

Step Third

Arrange your servo angels in the code. Try to check before your final demo.

That Was All For Part 3…

DON’T COPY AND PAST TRY WRITE YOUR OWN.

Method To Control

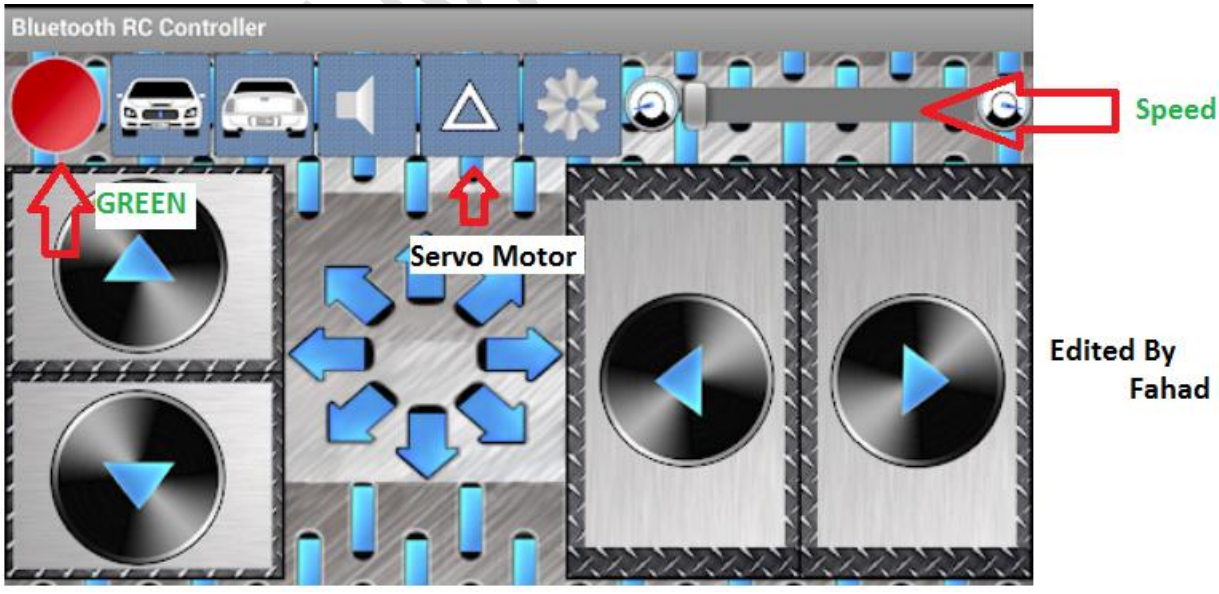
- First lunch Smartphone hotspot on Smartphone which is to use as spy camera. Then start “Ip Camera” server it will show you an Ip Address on that phone copy it.

- Open that address in laptop browser. Then a page will be displayed click on “browser” or “flash” tab in video section. To use flash option allow your flash player first.

- Then connect you second Smartphone with Arduino Bluetooth module. Lunch the Rc Car app take the control and enjoy.

Note: You also have the option to hear the sound from the other party through this app. Check its uses on it Google play page.

Switch of Servo Motor To Change Camera Angle



Future Direction

- Installation of solar panel to be powered by itself.
- Attachment of hand to remove obstacles from its way.
- Arrangement of a pulley at back to be pulled backward against slippery way.

Uses Other Then Spying

- It can be used to communicate with terrorist or rubbers without risking any life as well as to check inside situation on live screen.
- It can be used to communicate & search people stuck underground due to earth quake or some other crises.
- It can be used as surveillance.
- It can be used in such situation where human can't go to check in due to gases or some other toxic environment.

That's all about my project.

FAQ

What would be the range of Hc 05 Module?

HC-05, the HC-06 module can reach a range of up to 6 meters.

What would be the range of Smartphone Hotspot?

Mobile hotspot has a range of about 10 meters.

What is the weight of this spy robot?

Its weight is nearly 2 kg.

How much load it can bear?

It can bear up to 3 kg extra then that's of its own.

Can we hear the voice of opposite party through ip camera?

Yes. It has this option.

How many volts are required to power this robot?

12V Battery is enough to run it with 2 Dc Motors.

Why the l298N is used in this project?

Because the output voltage of arduino pins is small 3.3v. Another reason is that, that it controls dc motor motion is one direction but l298n can control 2 directions.

Can we use another smartphone instead of laptop?

Yes. You have just to visit that Ip Address.

Can we control the car through Laptop?

Yes But it is difficult because there is no such application to gives you such interface like it does in android.

Why to use smartphone as camera why not camera module?

Because arduino can't process too much data on real time basis that's why I used smartphone.